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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,612	12/26/2006	Stewart Kessel	S9025.0151	3558

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EXAMINER

FRANK, NOAH S

ART UNIT	PAPER NUMBER
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1796

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/579,612	Applicant(s) KESSEL ET AL.	
	Examiner NOAH FRANK	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 12-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 12, 22-23, 25-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Legrande (WO 03/078531).

Considering Claims 1-3: Legrande teaches electrically conductive coating compositions having a water soluble emulsion polymer binder (3:1-5). The binder is a blend of a first emulsion containing a conjugated diene monomer or comonomer and a second emulsion containing an acrylic polymer (3:5-10). The coating composition contains an effective amount of electrically conductive particles (3:15-20), such as silver or nickel containing particles (3:20-25), as well as water (4:1-5). While Legrande does not explicitly state that the composition is energy-curable (radiation curable), the dispersions contain ethylenic unsaturations, which are inherently capable of being radiation cured.

While Legrande does not teach that the only particulate electrically conductive material present is a metal, claim 1 is directed towards an "energy-curable coating composition comprising". Comprising is open ended, and therefore other particulate electrically conductive material can be present.

With regard to the claimed resistivity, the Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 1 ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Considering Claim 4: Legrande teaches using 1,3-pentadiene, an insoluble monomer, and acrylonitrile, a soluble monomer (5:1-5).

Considering Claim 12: Legrande teaches using silver or nickel containing particles (3:20-25).

Considering Claims 22-23: Legrande teaches using 12.5% water (16:20-25).

Considering Claims 25-26: With regard to the claimed resistivity, the Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 10^{-2} ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the

Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531), as applied to claims 1 and 4 above, and further in view of Durand (US 5,061,551).

Considering Claims 5-6: Legrande teaches the basic composition as set forth above regarding claims 1 and 4. Legrande does not teach the binder comprising a water-soluble or water-dispersible urethane, polyester, or epoxy resin containing acrylate ester groups. However, Durand teaches UV curable inks based on acrylated urethanes, polyethers, epoxyresins, and polyesters (5:25-6:25). Legrande and Durand are combinable because they are from the same field of endeavor, namely conductive inks. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the acrylated polymers, as taught by Durand, in the invention of Legrande, in order to make an ink with the desired physical properties.

Claims 7-10, 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531), as applied to claims 1 and 4, and further in view of Batting et al. (US 2003/0119941).

Considering Claims 7-8: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the binder or water-soluble monomer comprising an ester of acrylic or methacrylic acid with polyethylene glycol or with one of the claimed alcohols.

However, Batting et al. teaches UV curable inks comprising a water-soluble monomer that is an ester of acrylic or methacrylic acid with polyethylene glycol or with a mono-, di-, tri- or tetra-hydric alcohol derived by ethoxylating with ethylene oxide a mono-, di-, tri- or tetra-hydric aliphatic alcohol of molecular weight less than 200 (¶0025). Legrande and Batting are combinable because they are from the same field of endeavor, namely UV curable inks. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the acrylic esters, as taught by Batting, in the invention of Legrande, in order to make an ink that is elastic and flexible (¶0012 of Batting).

Considering Claims 9-10: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the binder or water-insoluble monomer comprising an acrylate or methacrylate ester of a mono-, di-, tri-, tetra-, penta-, or hexa-hydric alcohol having a molecular weight of less than 300.

However, Batting et al. teaches UV curable inks comprising a monomer that is insoluble in water, which is an acrylate or methacrylate ester of a mono-, di-, tri-, tetra-,

penta-, or hexa-hydric alcohol having a molecular weight of less than 300 (§0028). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used the acrylic esters, as taught by Batting, in the invention of Legrande, in order to make an ink that is elastic and flexible (§0012 of Batting).

Considering Claims 27-28: Legrande teaches the basic composition as set forth above. Legrande does not teach curing the composition via ultraviolet or electron beam.

However, Batting et al. teaches curing UV curable inks via ultra-violet light (§0033). At the time of the invention a person of ordinary skill in the art would have found it obvious to have used ultraviolet light, as taught by Batting, in the invention of Legrande, in order to efficiently cure the ink.

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531).

Considering Claims 13-15: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the claimed percentages. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. The solubility of the ink may be varied according to the ratio of water-dispersible oligomer, water-soluble monomer, and water-insoluble monomer. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable,

which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

Claims 16-21, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Legrande (WO 03/078531).

Considering Claims 16-21: Legrande teaches the basic composition as set forth above regarding claim 1 and 4. Legrande does not teach the claimed ratios or percentages of conductive material. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. MPEP 2144.05 The resistivity of the ink may be varied according to the amount of conductive material. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215.

Considering Claim 24: Legrande teaches electrically conductive coating compositions having a water soluble emulsion polymer binder (3:1-5). The binder is a blend of a first emulsion containing a conjugated diene monomer or comonomer and a second emulsion containing an acrylic polymer (3:5-10). The coating composition contains an effective amount of electrically conductive particles (3:15-20), such as silver or nickel containing particles (3:20-25), as well as water (4:1-5). While Legrande does not explicitly state that the composition is energy-curable (radiation curable), the

dispersions contain ethylenic unsaturations, which are inherently capable of being radiation cured. In addition, Legrande teaches using 1,3-pentadiene, an insoluble monomer, and acrylonitrile, a soluble monomer (5:1-5), and using 12.5% water (16:20-25).

With regard to the claimed resistivity, The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 1 ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Legrande teaches the basic composition as set forth above. Legrande does not teach the claimed ratios or percentages. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233.

The resistivity and solubility of the ink may be varied according to the amount of conductive material and water-soluble and insoluble monomers. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable, which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. MPEP 2144.05

Claim 29-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Batting et al. (US 2003/0119941) in view of Legrande (WO 03/078531).

Considering Claim 29: Batting et al. teaches radiation curable inks comprising a photopolymerizable water-soluble oligomer or prepolymer (¶0024), an ethylenically unsaturated (photopolymerizable) water-soluble monomer (¶0025), an ethylenically unsaturated (photopolymerizable) water-insoluble monomer (¶0028), water (¶0030), and 1-5% photoinitiator (¶0026).

Batting et al. does not teach a particulate electrically conductive material. However, Legrande teaches inks having electrically conductive particles, such as silver or nickel containing particles (3:20-25), dispersed in binder (3:15-20). Batting and Legrande are combinable because they are from the same field of endeavor, namely UV curable inks. At the time of the invention a person of ordinary skill in the art would have found it obvious to have used electrically conductive particles, as taught by Legrande, in the invention of Batting, in order to make conductive inks.

Legrande does not teach the claimed ratios or percentages. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. The resistivity and solubility of the ink may be varied according to the amount of conductive material and water-soluble and insoluble monomers. Consequently, it would be obvious to optimize. A prima facie case of obviousness may be rebutted, however, where the results of the optimizing variable,

which is known to be result-effective, are unexpectedly good. *In re Boesch and Slaney*, 205 USPQ 215. MPEP 2144.05

With regard to the claimed resistivity, The Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredients. Therefore, the claimed effects and physical properties, i.e. a resistivity no greater than 10^{-2} ohm/square would implicitly be achieved by a composite with all the claimed ingredients. If it is the applicant's position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Considering Claim 30: Batting in view of Legrande does not teach the claimed ratio or amount of conductive material. However, the experimental modification of this prior art in order to ascertain optimum operating conditions fails to render applicants' claims patentable in the absence of unexpected results. *In re Aller*, 105 USPQ 233. MPEP 2144.05. The amount of conductive particles directly effects the conductivity of the composition. Consequently, it would be obvious to optimize.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See attached form PTO-892.

Response to Arguments

Applicant's arguments filed 4/2/08 have been fully considered but they are not persuasive.

In response to applicant's arguments that Legrande requires the presence of graphite, whereas the current application does not, it is pointed out that the applicant's claims are directed towards an "energy-curable coating composition comprising". Comprising is open ended, and therefore other particulate electrically conductive material can be present.

In response to applicant's arguments that Legrande does not teach a resistivity of less than 1 ohm per square, Legrande does teach a composition comprising all of the claimed ingredients. The claimed invention does not omit graphite, due to the use of the term "comprising". Either way, the resistivity of a composition may be altered by varying the amount of conductive material. Therefore, the claimed resistivity would be the result of an optimizable variable, and hence be obvious.

In response to applicant's argument that Durand is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, both Legrande and Durand are conductive inks. In addition, both are UV curable. While Legrande does not state this, the composition comprises ethylenic unsaturation and is inherently UV curable.

In response to applicant's argument that Legrande is not a UV curable ink, the Examiner submits that any composition comprising ethylenic unsaturation is inherently UV curable.

In response to applicant's arguments regarding claim 29, the Examiner reaffirms that the current claims do not exclude graphite.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NOAH FRANK whose telephone number is (571)270-3667. The examiner can normally be reached on M-F 9-5 EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO, PhD./
Supervisory Patent Examiner, Art Unit 1796
7-Jul-08

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6-26-08